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COST AND MANAGEMENT

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Marketing Cost Control . . .

By Paul Jeffrey

**Developments in Electronic
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By M. J. Fraser

**The Human Relations Aspect
of Financial Controls . . .**

By J. A. McIntyre

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***Official Journal of
The Society of Industrial and
Cost Accountants of Canada***

Sept., 1955



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Cost and Management

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No. 8

MARKETING COST CONTROL

By PAUL JEFFREY 281

Paul Jeffrey is a member of the Marketing Division of J. D. Woods & Gordon Ltd., Toronto. Until recently, he was employed by Massey-Harris-Ferguson Ltd., and after taking their junior executive training course in 1949, served in the United States, Mexico and Canada, and as Sales Supervisor in Uganda, Tanganyika, Kenya and Madagascar, resident in Nakura, British East Africa. He then served as Export Sales Manager for Africa, in Durban, and as Assistant to the Vice-President, European Division. Mr. Jeffrey graduated in arts at Queens University in Kingston, after serving in the Canadian Army Parachute Corp.

DEVELOPMENTS IN ELECTRONIC DATA PROCESSING MACHINES

By M. J. FRASER 290

A native of Toronto, Mr. Fraser joined IBM in Toronto 25 years ago. After working in administrative positions for several years, he was appointed Manager of the IBM Service Bureau, and later, Service Bureau Manager for Canada, for IBM. In 1948, he was appointed to the Sales Division in Toronto and was selected in 1953 to specialize in the development of Electronic Data Processing Systems, with headquarters in Montreal. He is considered in IBM and by the companies with whom he has worked, as one of the most practical and experienced methods men in Canada.

THE HUMAN RELATIONS ASPECT OF FINANCIAL CONTROLS

By J. A. MCINTYRE 301

Born and raised in St. Thomas, Ontario, Mr. McIntyre attended the University of Western Ontario and graduated in Honour Social Studies in 1941. From 1941 to 1947, he was employed in various personnel executive positions with Canadian Industries, Ltd., and Defence Industries, Ltd., and in the next 4 years, served as Personnel Manager with the English Electric Company, its parent firm John Inglis Company, and for Rolph-Clark-Stone, Ltd. After a year as Personnel Consultant with J. D. Woods and Gordon, Ltd., he assumed the position of Supervisor, Selection and Placement for Simpson-Sears Ltd. Mr. McIntyre is a Special Lecturer, Institute of Business Administration, University of Toronto.

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Editorial Comment . . .

ACCOUNTANTS FOR SMALL BUSINESS

We are often faced by statements to the effect that this or that measure may be good for big business but wouldn't work in small ones. As the educational effort of our Society is directed toward a goal of developing industrial accountants as defined in the Society's literature, some attention will have to be paid to the question in what size of business these accountants are intended to act. It is not the purpose of this editorial to answer this question but we merely wish to present some ideas and figures for the purpose of provoking thought and discussion on this subject.

Cost accountants are accustomed to work with abstractions and approximations. We know that there are no really fixed costs and no fully variable costs and that most of the costs are falling into the grey zone of semi-variable but we, nevertheless, for several purposes, split the semi-variable into fixed and variable. A similar approach will probably be required for the distinction between "small" and "big" business.

The dividing line between "small" and "big" business is in many ways an arbitrary one. Some statistics recognize "middle size" enterprises.

Some people would measure the difference by volume of sales or services rendered, while others would look at capital invested or total assets or the number of employees.

The 1951 census showed that there were some 26,635 manufacturing establishments in Canada with 14 employees and less, and 10,386 with 15 or more employees.

By sales volume, there were 15,795 establishments with under \$25,000 output per annum and 21,726 with more than that. The Income Tax Act considers limited companies with a profit up to \$20,000 "small business", obviously a completely different term in comparison with "14 employees" or "\$25,000 volume."

The characteristics of small businesses are often recognizable even without the measuring quantitative devices mentioned above. They are usually owned by one man and/or his family or friends. They have advanced from one man proprietorship or partnership, with a few employees, and the owners actively engaged in sales of production, to a business requiring at least one level of middle management between the top man and the worker. For example, if a plant superintendent, a treasurer, and a sales manager are needed, the enterprise may still be a small business, but such an enterprise is one step ahead, in size and structure, of a single ownership. It has begun to acquire and develop the nature and habits of a modern business organization. It has taken on some of the basic forms of functional management. The policy making activities seldom take the chief executive's full time, though, and he can combine running the business with taking care of the sales, manufacturing, or financial function.

It is plain that there are a great number of small businesses in Canada, that fall within the limits described above. In spite of the

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tendency to consolidation in certain fields of industrial effort, which is currently tickling the investigating fancy of the anti-combines section of the Department of Justice, the number of small businesses is on the increase.

We can recognize a certain danger for big enterprises which originated with a common technology such as chemistry or one of the many branches of engineering. As the field unfolds, more and more diversified products are created which, in time, differ widely as to their problems in marketing, research, and even basic manufacture. From a management standpoint, the objectives and principles governing these different products may, and often do, start to run at cross purposes. This influence, and even automation itself, may well make smaller enterprises more desirable in many industries. In fact, the giant corporations are undergoing a definite change in the direction of decentralization, i.e., splitting up for managerial responsibility into several smaller enterprises, only loosely held together.

The advantages of the small business are very apparent to the owner. He sees very clearly the connection between his own abilities and economic results. His rewards are immediately apparent, as are his failures. Hence, the business can achieve a high degree of flexibility. The span of control is short and allows quick communication of ideas, orders, and decisions between the officers, supervisors, and workers.

Success depends more certainly on the few experts that may be employed, and this involves some danger. Small business may be too small to support the managerial talent required for its success. The perennial problem is closing the gap between the demands on the small business' management, and its competence. This competence is to not a small degree the result of proper education and practical training.

Great opportunities exist in small business for men skilled in the arts of marketing, production, and finance, and properly trained for the requirements of a small organization.

There is a need for well rounded accountants to act the part of business men as well as accounting experts in small and medium concerns.

The characteristics that produce success in the moderate sized business should be kept in mind. Swift, intelligent action, versatility with adequate and economical management tools and on all lines of economic thinking are not only valuable but indispensable.

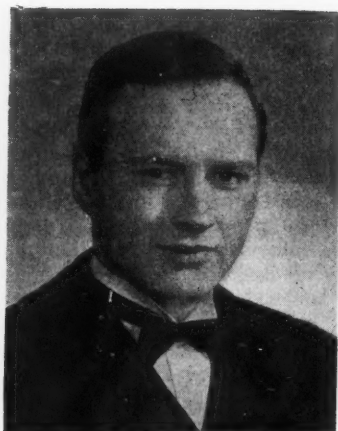
The accountant in a small business may be office supervisor, controller, economist, statistician, estimator-cost accountant, and even manager, all rolled into one.

We do not feel that the education of the industrial accountant should specifically aim at his employment in either "small" or "big" business but rather think that if his education is well rounded out, he should be able to work with success in any enterprise, regardless of its size, as his education will, in any case, only form a background on which to base practical experience and self-development. Nevertheless, it would be interesting to hear from our readers active in "big", "small", and "middle size" enterprises how they feel about this problem.

Medal Winners . . .



G. R. JAMES



MICHEL DUBÉ

The Society announces with pleasure the winners of the two national awards for high achievement in the final examinations.

The H. M. Hetherington Gold Medal, given for the highest marks in the Advanced Cost Accounting examination across Canada, was won by G. R. James of Windsor, Ontario, who is also the winner of the A. G. Howey Medal for the highest standing in the Province of Ontario; and the D. R. Harrison Gold Medal, awarded for the highest marks in Canada on the Fundamentals of Cost Accounting examination goes this year to Michel Dubé of Montreal, Quebec.

Mr. James, who has been a member of the Windsor Chapter for fifteen years and its Chairman for the past twelve, is presently Registrar for the R.I.A. courses there and Director of the Student Education Committee. He is employed by Kelsey Wheel Co. Ltd., where he has been head of the Cost and Factory Accounting Department for the past fifteen years.

Mr. Dubé obtained his Bachelor of Commerce degree from Laval University in 1954, winning the Palasis award. This year, he took his Master's degree, specializing in Business Administration and Cost Accounting, and winning the Lieutenant-Governor's Medal. He is presently employed by the Imperial Tobacco Company of Canada Limited in Montreal, where he is completing a three-year training programme.

C. & M. Round-Up . . .

By N. R. BARFOOT, R.I.A.

World Trade and Canada

We sold 3.9 billions last year, and imported 4 billions.

This is the fourth time in the last five years that a negative trade balance has happened.

Here is the import and export picture by countries:

	Export	Import
United States	2,513 millions	2,961 millions
United Kingdom	653 millions	393 millions
Benelux	95 millions	48 millions
Japan	96 millions	
West Germany	87 millions	46 millions
Brazil	45 millions	32 millions
Australia	46 millions	
Venezuela		168 millions
India		28 millions
All others	542 millions	420 millions

Twenty Years From Now

A recent address by James E. Coyne, Governor of the Bank of Canada, makes the following estimate about Canada in the year 1975:

	Now	1975
Population (millions)	15.4	25.1
Labour force (millions)	5.4	8.1
Gross National Product (\$ millions)	25,000	55,000
Exports as % of G.N.P.	24	20

Investment Guide

Here at least is how Canadian Insurance companies invest their money in common stocks.

A total of 127 millions is held by 21 leading Canadian Insurance companies in the following ways:

Banks, Insurance and Finance	32.4 millions
Metals and Mining	18.2 millions
Petroleum	9.7 millions
Steel and products	8.5 millions
Forest products	8.3 millions
Public Utilities	8.3 millions
Foods and beverages	3.9 millions
Building and materials	3.1 millions
Merchandizing	1.6 millions
Textiles	1.4 millions
Other	4.6 millions

Life companies may invest up to 15% of their assets in stocks, but in actual practice this is only 3%.

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Stocks thus bought must be valued on their balance sheets at market price.

96 millions held in common stock and 31 millions preferred.

Holdings range from a minor interest in a nurses' resident to 7 millions of Aluminum Limited common.

Seasonal Unemployment

A recent study on the subject shows that:

About 7% less people are employed in the winter than summer or some 300,000 people are affected by seasonal unemployment.

In Ontario the rate is only 4% and fluctuates between 9 and 12 in the other provinces.

Logging varies as much as 48%, construction 30%, lumber and products 10%, transportation services 7%, textile 7%, non-ferrous metals and manufacturing 4%.

The main industries contributing to seasonal unemployment have approximately the following numbers laid off in the winter:

Agriculture	80,000
Construction	75,000
Logging	55,000
Retail Trade	25,000
Fruit and Vegetable processing	18,000
Water transportation	10,000
Saw Mills	10,000
Canned and cured fish	5,000
Pulp and paper mills	5,000
Miscellaneous	20,000

Profits

Profits of Canadian manufacturers averaged 5.2% of sales in 1954—exactly the same as the figure for 1953.

Wages and salaries increased in 1954 to 22.1% of the sales dollars compared to 21.3% in 1953.

Percentage of the sales dollar retained in the business remained fairly steady 2.9% in 1954, and 2.8% in 1953.

The average profit for all businesses amounted to only 3.7 cents on the dollar.

Canada and U.S. Relations

A recent poll conducted in Canada by the Canadian Institute of Public Opinion shows that:

75% of all Canadians feel that relations between the two countries are excellent.

17% feel that they are just fair.

C. & M. ROUND-UP

2% feel they are poor.

6% have no opinion.

On the subject of tariffs 25% of all Canadians think that this is the major cause of friction between the two countries, while 40% have no opinion.

27% of the Canadian populace are of the opinion that relations have improved in the last few years.

Only 6% felt they had worsened.

2% of those who felt that relations had improved attributed the improvement to the world situation and fear of war.

Magic Mineral

Canada supplies 65% of the world's asbestos.

It has been mined in Canada (Quebec) since 1878.

6,000 miners and mill workers are now employed.

Sales are nearly 100 millions per year.

There are over 2,000 uses in world industries and homes.

The Chemical Industry

The chemical industry has doubled its output in the last 8 years, and has spent 525 millions in new plant and equipment in that period to get to the present production level.

By 1975 it should have doubled again, unless exports become a greater factor than at present, in which case the prediction is too conservative.

Export market has been poor, simply because of prohibitive tariffs in the U.S. and abroad.

Here are a few comparisons between the year 1949 and 1954 on the sales of various products.

Product	1949	1954
	\$ Thousands	
Heavy Chemicals	39,664	143,343
Fertilizers	33,984	78,891
Medicinals	48,008	94,150
Paints and varnishes	39,810	109,791
Soaps	30,405	92,208
Vegetable oils	9,132	47,819
Plastics (primary)	9,663	50,431

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Marketing Cost Control . . .

By PAUL JEFFREY,
J. D. Woods & Gordon, Ltd.,
Toronto.

Efficient organization of the marketing function supported by effective budgetary control, is the author's approach to a planned programme of costs, achieving greater utilization of the marketing dollar, and consequently, lower unit cost of distribution.

MY subject is concerned with the problem of controlling marketing costs. To assist you in following my remarks, and also to keep to a plan, I have worked out three basic considerations which I feel can be applied to this problem. These are:

- (1) Defining the limitations or boundaries of the problem of marketing cost control.
- (2) Suggestions as to how marketing costs may be reduced through improved organization of the various selling or distributing functions.
- (3) The evaluation of the results of distribution cost—reduction programmes.

In all these factors emphasis will be placed upon the role of the cost accountant in promoting greater sales efficiency, thus reducing distribution costs.

Introduction

A great deal has recently been said and written about the tremendous economic expansion that has taken place in Canada since the early nineteen-forties. Production has grown beyond all expectations, total income has reached new high levels, and the rate of population increase has astonished most economists and professional forecasters. The question is often posed as to whether the marketing side of business has kept in stride with the developments in the fields of engineering, manufacturing and research.

We in marketing are constantly being told that the salesman who knows how to compete for business is gone. It is claimed that only order takers are left now. We hear that young men coming along never have been under fire on the selling front—that they have no heart. But, even as the world has changed tremendously since 1939, so has selling. The whole scene is different, and with it the needs of the consumers and the consumer's idea of what industry should do to satisfy these needs. The modern Sales Manager needs all the ability, the energy, the competitive spirit, and the instinct for the right answers that he needed in the past, but in addition, he needs to know a great deal more about many more subjects that were not his responsibility in the past.

This means that the modern salesman *too* must know far more about his vocation than before. But, if the salesman and his depart-

*This talk was presented at the March 1955 meeting of the Hamilton Chapter.

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ment are to do their jobs, the rest of the organization must be studying the customer also—watching his requirements and his habits, and anticipating his needs.

This brings us to the question whether it is really true that the salesman is so inefficient at the present time. Is this inefficiency contributing to rising marketing costs? Is old-fashioned selling what we need? Take the United States as an example. We find that though there is less than a 30% increase in the number of sales people employed in that country since 1939, this force is being asked to sell more than twice as many goods and each salesman keeps, on the average, some 31 factory workers in their jobs. Furthermore, it has been estimated that if selling proficiency is not further increased by some 20-25 percent in the next five years, the American economy will have to recruit and train upwards of 500,000 additional salesmen to dispose of their increased factory output.

The same applies in proportion to Canada. This would represent a heavy additional burden of marketing costs that would have to be reckoned with. Therefore, although it really cannot validly be stated that salesmen today are a breed in any way inferior to their colourful predecessors of some 20 or more years ago, it cannot be denied that a problem exists in marketing in the United States and in this country, and this problem is concerned with the rising marketing costs.

The Problem

That marketing costs are rising seems to be commonly accepted. Unless a salesman and his activities can be more effectively organized, the next decade may well see an even sharper rise in marketing costs. It is a natural assumption that as part of their general cost reduction policies, most companies examine the costs of selling and delivering their products. Sometimes it is possible to cut expenditures immediately. Usually, however, organization and methods are revamped to achieve greater efficiency. The ultimate objective is to reduce unit cost of sales and delivery.

In a nut shell, it can be stated that the problem lies in the fact that indiscriminate cost slashing is not the solution to the problem of high distribution costs. This can only be done by supplementing immediate cost cutting activities with a well-thought out programme aimed at increasing marketing efficiency over the long term viewpoint.

As recently expressed by the president of a prominent company as quoted in a marketing publication:

"Our general policy is toward a more efficient expenditure of the marketing expense dollar, so that it will bring a greater return in volume of sales over both the short and the long range. Obviously, we aim at reduction of marketing costs wherever feasible. However, the wise and efficient use of these expendi-

MARKETING COST CONTROL

tures is of at least equal importance. We attempt to spend the dollar where it will do the most good, and not to cut costs where it is felt that such reduction would result in a more than proportionate reduction in the sales volume."

There are, however, factors that cause some companies to think twice before they adopt a wholesale policy of cost-cutting. Sometimes an increase in distribution costs leads to lower production costs by permitting greater volume, longer production runs and the consequent more efficient use of plant facilities. In other cases, marketing costs must be increased to do an effective selling job. Then, too, increased cost of freight and higher charges for advertising space and travel expenses can force up the sales budget in order to achieve the same coverage as attained in previous years.

In view of these obstacles, it appears that the approach to reducing distribution costs lies, first, in a thorough appreciation of the problems of marketing, and then in a carefully planned programme based upon the principle that cost reduction is a continuous activity.

This serves to identify the problem. Now the question is, how can marketing costs be reduced through better organization of the varied selling activities?

Organization of the Various Marketing Functions

Selling has always been a relatively inefficient process in the general field of industrial activity. Think of the amount of time that a salesman wastes sitting around waiting for customers or chasing them down for appointments. Note his unnecessary calls, his long trips for a single call, how little he often knows of his markets, of consumer preferences or of what his competition is doing. All these factors raise marketing costs and hinder attempts to relate actual selling costs to expenditures allowed to promote sales.

Selling these days requires more than the big smiles, glib tongues and thumps on the back usually portrayed in cartoons. It is a complex function demanding the best of able men. However, in this analysis of the problem of marketing costs, it must be kept in mind that some factors haven't changed. The salesman who makes no calls usually has difficulty selling any products. The enthusiast is more successful than the pessimist, especially if he is better informed and better trained. A pleasant personality sells your product. These are clichés, but then they are true of almost every relationship in life, including selling.

On this topic of inefficiency of marketing, it is safe to state that some of you may think that there is little, if any, waste in that part of your company budget concerned with marketing operations. However, I feel that the degree to which poor cost control or actual loss of profit through waste enters into marketing operations often is directly related to the reliability of the records on which the budget is based. Other facts

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contributing to this inefficiency are the attention given to the breakdown of the main components of the budget, and the care with which actual developments are recorded and compared to predetermined standards. If you are to find where certain marketing costs require closer control, then the budget should be sufficiently detailed to permit careful study of the individual costs.

These comments are all very orthodox, although I feel that they are being ignored to a large degree by too many accounting departments in their relations with the marketing side of operations.

I should point out, at this stage, for the purpose of clarifying terminology, that in this paper I confine my observations of the marketing cost control problems to those marketing activities concerned with getting sales, such as advertising, promotion of a product, or actual selling and the direction and administration of these activities. The other side of the marketing procedure concerned with executing the sales orders is not treated as part of this new problem, as it is termed in your 1954-1955 programme. Although control over costs of order-filling activities in the marketing field is vital from the profit viewpoint of most companies, I feel these order-processing activities can be translated into terms of physical standards expressed in man-hours and for such activities overall standards are already in general use as a basis for cost control. In my mind this cost control of the order-processing function is not a new problem.

What we are concerned with here then is the basic cost control conception as related to the expenses of advertising, sales promotion, selling and the administration of marketing functions of a firm. This, I feel, consists of the establishment of the objectives in terms of costs, the recording of actual current expenses, then a detailed comparison of results and objectives. The need for this control of marketing costs is all the greater when the organization required to sell the products is large, and sales outlets geographically dispersed, as, for example, in the automobile companies or the larger farm implement companies with their numerous branches all over the world.

It is really quite amazing to note the number of companies in this country that carry on with no idea or plan such as that contained in an operating budget. Some companies do not even have an idea of what their sales will be. Expenses are assumed to be the same as last year. Monthly results are given to the directors, but putting down their ideas of what will materialize 12 months or more ahead seems to these companies to be a foolish guessing game.

It is true that this is an educated guess. But it is not a game. Each company sales department should predict what they think they will sell, or hope to sell, or propose to sell, on a monthly basis for a 12-month period in the future. This forecast, with corresponding expenses, should be reviewed every month, and if the results at the end of a quarter bear

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no relation to the forecast, then a new operating budget should be drawn up based on the experience gained in the previous three months. Once an operating budget is accepted and is adhered to for some six months, then a further six month extension should be drawn up to the original 12-month forecast. The budget should include a complete analysis of selling expenses. Marketing costs should be broken down into sufficient detail to show management whether or not these individual expenses are justified. For example, if another salesman is to be added, the budget should point out how much he will cost in terms of salary, travelling expenses, commissions, etc. (and, despite the sales manager's protests, this information can be calculated). Against his monthly selling expenses, a figure on a monthly basis of what he is expected to sell as he becomes more proficient and better acquainted with the product, should be included. Then you can judge whether it is better to engage a new salesman, or increase advertising expenditures, or raise commissions of existing salesmen, or fold up your operations completely in certain lines, ad infinitum.

At this point, let me read to you the remarks on this subject of budgetary control recently made by Mr. J. H. Shields, president of The Superior Coach Corporation, to the Truck Body and Equipment Association.

"PLAN IT . . .

A lot of people scoff at budgetary control and a lot of salesmen object to the work . . . Most people just say that you can't anticipate what is going to happen. You will be amazed to learn that after more than 20 years of experience in this type of control our (company's) sales projection for the past several years has not missed one way or the other by $1\frac{1}{2}$ percent. The same thing holds true with our projected budget. Budgetary control gives us a road map so that we know where we are heading and where we are going to end up. In the developing of sales forecasts and budget we use the critical type of approach. Through this method we attempt to discover the weaknesses and ferret out unnecessary waste in the cost of our operation. Through an approach of this type all problems are *analyzed* rather than *diagnosed*."—J. H. Shields, president, Superior Coach Corporation, to The Truck Body and Equipment Association.

However, you have to move slowly and examine each proposed plan carefully. The question then arises as to how closer control of marketing costs may be achieved other than by budgetary control. I list just a few of what I feel are the most important organizational possibilities:

You should:

- (1) Eliminate discounts not justified by costs involved.
- (2) Eliminate inefficient dealers.

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- (3) Take steps to solve the small order problem by establishing quantity discounts, by using jobbers to handle small orders, by establishing a service charge for small orders, by routing salesmen to spend more time with larger accounts, etc.
- (4) Streamline order processing.
- (5) Improve selection of salesmen.
- (6) Intensify and improve sales training.
- (7) Carefully plan and control activities of the field sales force.
- (8) Re-organize sales territories to achieve better coverage.
- (9) Introduce inventory control methods.
- (10) Make greater use of marketing research.

I feel I could continue indefinitely on this subject. Instead I will sum up in three points how, despite the obstacles inherent in any attempt to control selling costs, it is felt that the approach to reducing distribution costs is now being made by most companies aware of this problem:

FIRST (a) It is found necessary to move slowly and to avoid wholesale slashing of budgets. Each proposed plan must be carefully studied and decision taken on the merits of both its immediate and long term results.

SECONDLY: (b) Cost reduction must be regarded as a continuing activity. Constant checking through the medium of budgets is more effective than spasmodic checking.

LASTLY: (c) Steps should be taken to cut marketing costs immediately wherever possible. At the same time money must be spent on legitimate programmes that will result in future lowering of unit marketing costs.

The problem has been defined, the importance of organization and budgetary control has been discussed, and now it is necessary to consider the evaluation of results in relation to marketing cost cutting programmes.

Evaluation of Results

It is normally quite difficult to judge the results of cost reduction programmes, as advantages derived from cost reduction policies are not always measurable. Sometimes the savings take the form of better service, sometimes lower costs. However, as I have pointed out earlier, the aim is to achieve greater sales efficiency and thus obtain eventual cost savings.

Control of marketing costs is generally accepted to mean that funds allocated with a view to gaining a certain objective should be spent according to plan. The principal accounting tool used by management for controlling marketing costs is the periodic budget. It is true that standard costs are also used to control marketing costs but not to the degree they are used in the control of manufacturing costs. A third control is that applied after the result has been achieved in order to

MARKETING COST CONTROL

bring the marketing costs back into line with established objectives. In this case, current actual costs are compared with budgeted costs, or standard costs, or possibly costs taken from a comparable period in the past, and appropriate action taken to bring selling operations into line with the overall plan or budget.

This suggests that you must have a general plan before you can evaluate the results of your cost reduction programme. It is necessary, first, to establish the practical objectives to be reached during the budget period. This could be a sales increase, or efforts to be made against competition, introduction of a new product, or an effort to regain lost ground. Then you make a co-ordinated plan that you hope will enable you to reach the objectives. This plan deals with advertising schemes, sales promotional ideas, and actual field sales coverage. These points we have already discussed.

With the plan, you have the basis of cost control for marketing operations, but it does not go far enough. Due to its very nature, it has been difficult to apply accounting cost control techniques to marketing operations and up until recently, management has been preoccupied with production problems. To add to the difficulty, many cost accountants are unfamiliar with marketing and the needs which marketing management has for cost control information. Thus, without proper records on which to base judgment, it was virtually impossible to accurately evaluate results of indiscriminate marketing cost cutting policies.

In order to evaluate results of cost cutting programmes in relation to marketing expenses, you must take into consideration the short and long term consequences of such activities, not only with regard to selling expenses, but with regard to production costs as well. It is in the field of evaluation of results of cost cutting programmes dealing with marketing expenses that possibly the cost accountant can play a most important role. Accounting reports must be concerned with current developments and must analyze operations in such a way that management can see where they are going, and whether the cost reduction policies that they have introduced in certain fields are justified. Therefore, the cost accountant must record developments in such a way as to point up this information.

The accountant, then, needs to be acquainted with marketing operations and with the problems which face marketing management. Otherwise, how can he have any idea of what information marketing management, or management as a whole, can use in controlling marketing costs? Furthermore, in order to present accounting figures in such a way that marketing executives can understand or appreciate what they are intended to accomplish, the cost accountant first must know how marketing executives operate. There have been many suggestions as to how the cost accountant and the sales manager might get together. The factory and the internal office have cost accountants. There is no

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great problem involved in having a cost accountant set norms for selling costs. They may not be as accurate as those set by their associates in the plant, but simply because they are not accurate does not mean that this approach to the problem should be completely ignored.

It appears that some of the more serious criticism by marketing executives of the contribution of accounting to the control of marketing costs is based on the claim that accounting reports are made available too late to be of any value, and that the information provided concentrates on past performance ignoring the future. This criticism, to a certain extent, may not be valid, but there certainly is sufficient truth involved to point out what marketing requires. To be of assistance, the cost accountant must keep looking ahead, anticipating developments and work in co-operation with the sales manager, assessing new projects in the light of their relative costs.

In closing, I would say that one important fact that develops from this general examination, is that the problem of marketing costs and their control is serious, and will become more serious. Furthermore, before this problem can be solved, the cost accountant must familiarize himself with marketing techniques and requirements. The need for efficient selling at less cost is constantly being felt to a greater degree by all companies engaged in marketing operations. This requires business leadership and initiative which can be provided most logically by the cost accountant.

I have attempted to outline the problem of marketing cost control, to submit a few suggestions, and to point out that the cost accountant can only put himself into the picture by thoroughly familiarizing himself with the problem, the thinking, and the requirements of marketing.

FOR FURTHER READING

- MARKETING NEEDS COST CONTROL by E. W. Kelley, *The Cont.*, May '53.
COST CONTROL FOR MARKETING OPERATIONS—GENERAL CONSIDERATIONS, *NACA Bull.*, Apr. '54, Section 3.
COST CONTROL FOR MARKETING OPERATIONS—ORDER GETTING, *NACA Bull.*, June '54, Section 3.
COST CONTROL FOR MARKETING OPERATIONS—ORDER FILLING, *Aug. '54*, Section 2.

COST AND MANAGEMENT



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Developments in Electronic Data Processing Machines . . .

By M. J. FRASER, C.G.A.,
*Electronic Sales Division,
I.B.M. Co. Ltd.,
Montreal.*

It is the author's conception that the development of large Electronic Data Processing Machines promises unparalleled opportunity for better control with economy. This happy condition cannot develop until each company creates within its own organization, a group who are thoroughly familiar with all Management needs for data, and can visualize how this can be accomplished.

TODAY, when office mechanization is advancing so rapidly, we are always on the verge of some new development. The interest in bigger and better machines stems from the realization that business must reduce the cost of paper work. The last ten years has seen more progress in mechanization in offices than any previous period in history and yet in spite of all the good work that has been done, there are today 60% more people employed in offices than there were ten years ago, and only about 5% of the work carried on in offices is completely mechanized.

Since 1939, when the first electronic tubes were used in IBM machines, an ever increasing number of uses have been found for these versatile tools. Today, we are using electronic tubes in our Punches, Sorters, Calculators, Printers, Collators, Mark-Sensing Machines and several others. What makes electronics so useful in their application is their terrific speed and reliability. In ordinary electric current, there are about one million pulses per second. Tubes and other devices have been developed that will add 50,000 of these pulses a second. If you can imagine a counting device that can add up to 50,000 by ones, in one second, you have an idea what an electronic tube can do. Why is it so accurate? Because it is only using one of 20 impulses available so that it is literally dawdling along at 50,000 pulses per second. Today, using this same principle, we not only have electronic tubes but Magnetic Cores, Electrostatic Storage, Magnetic Drums, Magnetic Tapes and Transistors.

The new characteristic of Electronic Machines is the capacity to remember. Utilizing this factor of memory makes it possible to write a long, detailed list of instructions and store it in the memory of the machine which will then proceed to carry out these instructions as required.

The new components used in Electric Data Processing Machines may be of interest.

Magnetic Cores

This is a form of Storage utilizing small doughnut-shaped pieces of Ferrite Magnetic Cores arranged on wires.

*An address given at the 1955 Annual Provincial Conference of the S.I.C.A. of Quebec.

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By sending current in one side of the cores, figures are stored. By changing the emission of the current, the information is read out. This is the most promising component yet developed for high speed electronics.

Another significant unit is *Electrostatic Storage*. This is a tube on which figures are stored in magnetic spots on the face of the tube. A recent IBM development in this field, known as the Barrier Grid Tube, increases the number of figures which can be stored on one tube by a power of 10. The advantage of this method is that data stored in this manner is available immediately or, in technical language, in 17 micro-seconds which is 17 millionths of a second.

Magnetic Drums

Another significant unit is the magnetic drum, one of which is a highly polished steel cylinder 4" in diameter on which 20,000 digits can be recorded and read on or off at the rate of thousands of digits per second.

Magnetic Tapes

This is such a fundamental development that these machines are sometimes referred to as tape machines. The tape is ferrous coated acetate tape on which is recorded in Magnetic Spots—alphabetic or numeric information.

The information is recorded in seven channels with a density of 200 figures per inch. By way of illustration, the information from 25,000 cards or more can be stored on one reel of magnetic tape. This tape can be processed through the machine in just six minutes. This is roughly all the telephone numbers in the City of Montreal telephone directory on one reel of tape.

Transistors

A great deal of research is being done on Transistors and the big problem has been to manufacture them in pure enough form to use in a calculator. This problem has just recently been overcome and IBM has announced the first Transistor type calculator to be put on the Market. This machine utilizes Transistors and Printed Circuits, is smaller than previous models, and generates 95% less heat. It is 55% faster, doing 155 problems a minute and has roughly twice the capacity of previous calculators of this size. It is the first commercial transistor type calculator, and is bound to have a profound effect on all the present type calculators.

Self-Checking

All of the units mentioned are highly reliable units, but in accounting, we cannot be satisfied with anything but 100% accuracy, consequently a great deal of effort has been put into making these systems as close to 100% accurate as is humanly possible. In all reading of information, a system of checking known as the Redundant Bit Check is used. This is simply a system of recording in the magnetic spots an

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extra spot to make the count of any letter or figure add to an even number of spots. Therefore, if any character does not add up even, the machine signals that this character is incorrect and automatically signals the machine to go back and read it again. If the character is still wrong, the record in error is written out in full and the machine automatically carries on. There are horizontal and vertical checks of all bits so that it is virtually impossible for a wrong character to escape the vigilance of this electronic check.

The 604

The most widely used electronic machine and the most commonly known is the IBM 604 Electronic Calculator. This amazing machine records factors from punched cards and using electronic tubes performs almost any calculation at a constant speed of 100 problems per minute.

One machine like this can and does figure out the earnings and taxes for every one of the 65,000 people paid by one of the railways.

Another machine like this, for example, as well as Payrolls, does the Cost Calculations for Aluminum Co. of Canada. Another machine like this at Canadair, does both Payroll and Cost work and also works out complicated engineering calculations on Stress analysis and similar work. Others are used by the Public Utilities to compute Power Bills and by such companies as Dominion Engineering and Northern Electric to do Cost Accounting Calculations. There are over 2,000 of these machines in use.

Cost Accounting

Before we pass on into the phase of Things to Come, let us look for a moment at some of the things we can do right now with this IBM 604 Electronic Calculator in the fields of Cost Accounting. This versatile machine can do all four basic arithmetic operations:—addition, subtraction, multiplication and division in any combination. Almost regardless of the complexity of the calculation, it will do a hundred problems per minute.

Payroll

For example, into a Payroll Card containing Hours worked, Hourly Rate, Tax Class and a total of Sundry Deductions, it will calculate:

Regular hours \times hourly rate = Regular Pay
Overtime hours \times over rate = Overtime Pay
Regular pay + overtime pay = Gross Pay
Gross pay \times pension rate = Pension Deduction
Gross — Pension Deduction = Taxable Pay
Income Tax Federal from Master Card
Income Tax Provincial from Master Card
Unemployment Insurance Deduction from Master Card
Taxable Pay less all Deductions equals Net Pay

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How fast are these calculations performed? 100 cards per minute or 6,000 per hour. What does this machine cost? \$600.00 per month. Is it accurate? Amazingly so. Even though it is a self-checking machine, it is not uncommon for it to run for days without ever finding an error.

Labour Distribution

Let us look at the average office of a manufacturing company and see how many jobs this machine can do. We have referred to the Payroll. Let us now look at the Labour Distribution. We will assume first, that we have a daily Time Card for each man, on which are recorded the jobs he worked on that day. We will punch into the daily Time Card the total hours worked and punch one card for each distribution. The cards are now passed through the 604 Calculator which in one pass will do the following operations:

1. Balance the attendance time against the distribution time and offset the cards if they are in error.
2. Extend the daily Time Card for Payroll purposes and the Distribution Cards for distribution and balance them to the cent.

How fast? 100 cards per minutes—6,000 per hour.

Let us assume that there are a few complications such as shift differentials. Here by punching the shift indication in the daily Time Card, the 604 will automatically add to the rate, shift differentials and do its calculations accordingly.

Let us assume another complication, namely, that some work is on standards and some is on hourly rates and the employees are to be paid whichever is the higher amount. This illustrates another function of this machine, which can select the higher of two amounts and discard whichever figure is not needed.

As you all know, there are many varieties of Incentive and Group Bonus plans. Without going into all the details, I would like to comment that some of the most complicated of these in Canada are done on this machine.

To summarize then this machine can:

1. Check attendance time to distribution time.
2. Automatically rate hourly workers from Master Cards.
3. Extend Payroll cards with provision for shifts differentials, Group Bonuses, Incentive Plans, Pension Plans and any number of Deductions.
4. Extend distribution cards at hourly rates or standards or any combination of them and also extend Labour overhead on direct charges.
5. Summarize direct charges by work in process accounts.
6. Calculate ratios of actual hours to standard for Industrial Engineering purposes.

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Stock Control

Usually the second most tedious detailed job in the office is the maintenance of perpetual stock records and the detailed costing of issues and receipts. Let us assume that there is an individual requisition for each withdrawal or return and that we wish to maintain a perpetual Inventory Record for both Quantity and Value and use an average cost method of pricing.

Three groups of cards would be used in this routine. First would be the balance cards for each item showing the description, the unit cost and the balance on hand. Quantity and Amount.

The second group of cards would be receipt cards, punched for each receipt and showing by item, the quantity received and the amount.

The third group of entries would be the requisition cards punched for Item, Quantity and Distribution Accounts.

You will notice that each of these cards contains an Item Number and using an Electronic Sorter operating now at up to 1000 cards per minute, the cards for each item are brought together for processing. The cards in order of old balances, receipts, disbursements, new balances are passed through the 604 and the following calculations take place.

Requisitions are costed and extended and the cost punched in each card for Distribution purposes. The receipts are added to the opening balance. The requisitions are subtracted and the new balance of Quantity and Value is punched in the new balance card. At the same time, the Quantity on hand is divided into the Inventory Balance and a new average cost is obtained automatically.

The New Balance Card is now interpreted for ready reference and we have a perpetual Inventory Card completely in balance with the Control Ledger and produced without manual calculation.

Let us suppose that there are a few complications in this perpetual Inventory system, and that in addition to showing the actual balance on hand, we also wish to show the orders placed and material reserved for planned production. By the addition of cards for these items, we can compute a second quantity balance often referred to as Stock Status Position. This Stock Status Balance is carried on the same card as the Stock on Hand and obviously it can be used to print lists of items for Stock Planning purposes.

Depreciation Schedules

The preparation of Depreciation Schedules and the maintenance of Asset Records showing the depreciated Asset Value is another common application of this machine.

Under this method, a card is kept for each Asset and passed through the Type 604 each month. A calculation is made of the Monthly Depreciation and the new Asset Value. On the final month, when the Asset is

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fully depreciated the machine will select the final amount which may be a few cents different from the usual monthly depreciation. The cards are used to prepare the Monthly Depreciation Journal and also at least once a year, the Detailed Listing of all Assets to support the figures shown in the Balance Sheet.

Manufacturing Control

One of the basic problems of Manufacturing Control is to take a planned production schedule and convert it into units of Material required and hours of labour required by operation.

With such a plan, the required material can be ordered and the work scheduled to the different operations in the most efficient manner.

Using the Type 604 Calculating Punch, a routine to do this work becomes relatively simple. A Master Deck of cards is made for each Master Bill of Material or List of Operations. Using the Production Schedule as a Master List, the necessary Bills of Material Cards are automatically extended by the Type 604 to their component Parts or Operations.

Summaries of Material required and Machines Hours by Operations are obtained making it possible to do a highly efficient job of Machine Tool Loading and Scheduling.

Quality Control

Quality Control in a process industry usually requires constant calculation of current data compared with predetermined standards.

At least one of the pioneering companies in the textile field has utilized the 604 to such good advantage, that they have reduced their "seconds" from 14% to an almost negligible figure.

Other companies in the chemical and oil industries are using this machine to compute quality controls that save them time and money.

Other Applications

We have briefly examined the applications which entail the greatest amount of detail work in Cost Accounting but this is by no means all the jobs that this versatile machine can do well. Many companies using it, also calculate unit costs, figure efficiency ratios for industrial engineering and calculate the difference between actual and standards on production. It is also used extensively to calculate billing extensions and to cost physical inventories.

In the engineering field many men are just as enthusiastic about this machine as they are in the accounting field and are finding it practical to eliminate approximations arrived at by slide rules and substitute exact calculations provided by the Type 604.

Electronic Data Processing

The most spectacular of the Electronic Machines are the so called Giant Brains. These machines, which work on the same principles as

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I have described, differ largely in their memory capacity. The need for large scientific computers largely sparked this development. Today, there are nineteen of these large computers in use at Los Alamos, in the Aircraft and Guided Missile Field, and at various centers for scientific research through the country. Using these computers, for example, sequential equations that would take a man seven years to solve can be done in the machine in just seven minutes.

In the business world too, there have been spectacular developments in Electronic Data Processing. Perhaps, it would be well to discuss this term a little more fully, because it is going to be one we will hear more and more frequently.

Consider the case of a fairly large business and its records. For each employee, there is a personnel record, a payroll record, a pension record, a medical record, a bond account, group assurance, earnings and income tax records, seniority records, and maybe several others. There is a duplication of records here, that is difficult to avoid under the manual system and at the same time, is costly to maintain where changes are frequent.

Methods men, studying this problem, believe the solution may be in one record maintained and revised by an Electronic Data Processing Machine—where the necessary information would be stored on cards or magnetic tape and the results printed as required by the machines.

Automatic Electronic Data Processing

A few weeks ago, one of the first 702 EDPM produced at the IBM Poughkeepsie Plant, was installed at the plant there, to run actual work. One of the first jobs given it to do, was the preparation of the 8,000 man plant payroll. I would like to describe for you the actual processing. First, all the payroll information of each employee was recorded on a Master Tape. This information in order of Clock Number, contained his name, rate, department, tax class and fixed deductions and year-to-date totals or earnings, and deductions.

Into the card reader of the machine were put weekly time cards containing the hours worked and adjustments for changes in deductions.

The cards and tape were fed simultaneously and the entire payroll calculated and recorded on Magnetic tape in just 50 minutes. On the Printer output the payroll register was printed. On the card output, the card cheques were prepared, and on the tape output was recorded the year-to-date figures and basic data required to process the payroll the following week.

A moderately priced machine to do this sort of work, was announced several months ago by IBM as the Type 650 Magnetic Drum Electronic Data Processing Machine. We have on order over 500 of these units and are starting to deliver them now.

In even bigger machines there are, likewise, spectacular developments. In the largest commercial machines available, IBM has recently

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announced Type 705 Electronic Data Processing Machine. This is a machine which operates from Magnetic Tape and uses Magnetic Core Storage. It will do tremendous calculations and printing at a very high rate of speed.

I have attempted to show you how the evolution of electronic machines is developing and I think we can agree that the evolution is a very rapid one. IBM is hastening this evolution by spending tens of millions of dollars in research every year, and there is only one fact that we are sure of today, and that is that even more efficient machines will be developed, and what we think of as ultra modern today, will be obsolete tomorrow.

This equipment was developed first of all, to handle scientific problems which required tremendous sequential calculations. Let us look, for a moment, at the story of this development and how the development has led to the marketing of machines for ordinary business use.

The large machines have been sold to do such varied jobs as Production Control, Perpetual Inventory, Insurance, Banking, Investments, Billing and Sales, Railway Revenue and Disbursement Accounting, Payroll and Operating Controls on Production.

The Scope of Electronic Data Processing

The scope of the applications indicates perhaps better than anything else the wide application that this equipment will have. The natural question that arises in everyone's mind in connection with machines of this kind, is:—"Won't this do away with a lot of jobs?" It will certainly change a lot of jobs. General Motor's President, Harlow P. Curtice, testifying before the recent Stock Market Inquiry in the United States, had this to say about automation. "Automation is the making of tools to produce more efficiently. It's progress. In such progress, some workers may indeed be replaced by machines but for every job lost, a dozen more interesting, better paying jobs will open up in the making and servicing of machines."

Mr. Thos. J. Watson, one of the great pioneers in the office equipment field has this to say: "Automation will develop as all other forms of power has developed. Primitive man had only his hands, then animal power, then wind power, then came steam, and electric power, then gasoline and oil power and now atomic power. Not one of these powers ever cancelled out the power we already had. In every development, the original power, man power became more valuable than ever. Never in history has man received higher rates of pay for his work than he is getting today."

Nowhere is the fallacy of unemployment more evident than in offices. Despite the increasing number of machines in offices the number of office workers has risen in the past ten years by 60%, and it is only by reason of machines that office staffs can hope to cope with the increasing flood of paper work.

Operations Research

With the advent of Electronic Computers a new science has come into use, called "Operations Research."

There are certain problems which accounting cannot solve but which can be solved by mathematics. For example, suppose we have a plant well equipped to make electric fittings of which there are a variety of some 1000 all readily saleable, and our problem is to decide which of these products should be produced to operate the plant at the maximum efficiency—that is to give the greatest return on the investment.

The mathematicians have a formula for solving problems like this and the approach is known as "Operations Research". The many problems of planning ahead and visualizing results under various conditions will be made easier by these new tools.

The Challenge to Management

There is no doubt that some of the machines we have talked about are going to have a profound effect upon the way we operate in the near future.

Some of the changes that appear quite evident are that the office will become a more closely unified operation where the operations of production planning, stock control, cost accounting, payroll and general accounting will be brought more closely together, just as the development of more efficient office tools is going to hasten the centralization of more office procedures.

It is also apparent that the need for unskilled or semi-skilled clerical staff is going to level off or decrease and at the same time the need for accountants trained to interpret the results of business will increase.

It is also apparent that Management will need to know the detail of all office functions to a degree that is not usually done today, for as office functions tend to cross department lines, more responsibility will devolve on office executives and general management for the overall results. In some offices of the not too distant future, the manager of data processing will interpret the needs of management into a set of detailed instructions for an Electronic Machine which will receive the basic data and furnish the printed results according to the programme written for it.

Management by Exception

One of the intangible benefits that will accrue from large Electronic Machines is the realization of Management by Exception. We have all seen voluminous reports turned out purely to reveal to those responsible that something is out of line. Yet, by the very volume of the reports, this feature is lost because the Executive responsible has not time to plough through all the necessary data to get at the facts. The new conception of reports in the Electronic age is to set standards and only

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prepare a report where there is an unwarranted deviation from the standard.

Take, for example, a Stock Control for a company with, say 50,000 parts. The persons responsible for that Stock Control are only interested in three things:

1. Are we short of anything we need?
2. Are we overstocked on any items and why?
3. Are we maintaining the required rate of turnover?

An electronic machine can be programmed to answer these questions as a by-product of your regular accounting and print out lists of the items affected.

In this way and many others Management by Exception will become a reality.

One of the most frequently asked questions of Management is:—“How can we get ready now for the evolution which is coming?” First of all, we can discard the notion that this development is away in the future. It is here now! At least two hundred of the largest companies in the United States and Canada are fairly well advanced in their development. Like anything else, the hardest thing to do in this field is to get started. Electronic Data Processing is the ultimate in automation in the office. Far from being revolutionary, it is an orderly evolution for those who have advanced that far in mechanization. It cannot be done overnight, nor without building up within each organization some real experience on mechanization.

One of the things we can do, is to put down in writing all the steps in every routine with the idea of streamlining these operations. In one large company which was by no means inefficient, a programme like this resulted in a decrease in clerical help by 75 people, or a net saving of about 5% just to put down the steps in a way that would reveal duplication or waste.

The second thing that can be done is wherever possible make the original entry a punched card. Without exception all the big electronic systems have found the card the most economical and suitable medium for entering basic data into an electronic system. So, regardless of the system or the manufacturer eventually selected, you cannot lose by putting your basic records on punched cards now.

Finally, two people should be delegated in your organization to keep abreast of Electronic developments as they may affect your company. If you are a large company, the chances are you have already taken this step, but if not, it seems like good insurance for every company right down to at least the 100-employee level.

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Conclusion

I think we can all be very enthusiastic about these machines and what can and will be done with them. I think that you will also agree with me that calling them Giant Brains is very misleading. Giant Slaves might be a truer term. The more they are studied, the greater will be your respect for the human mind which in a space the size of your fist—can accommodate a memory of more than 75,000,000 items operating on the power equivalent to a 25 watt bulb.

We can all be proud of the fact that these machines can do nothing without the human mind to guide them and if they get into trouble they have to come to the human mind to straighten them out. We can be very sure that man-made machines will never replace the human mind but will relieve the human mind of drudgery, and free it for its highest function which is exercising human judgment.

FOR FURTHER READING

- ELECTRONIC DIGITAL COMPUTERS AND BUSINESS DATA PROCESSING,
The Cost. Acct., Apr. '55.
- ELECTRONICS: PRESENT AND FUTURE, by R. H. Eidem, Systems, Mch-Apr. '55.
- ELECTRONICS AS A TOOL OF MANAGEMENT, by T. F. Bradshaw, Can. C.A.,
July '55.
- WHAT MANAGEMENT SHOULD KNOW ABOUT ELECTRONICS FOR THE
OFFICE, Man. Meths., Jan. '55.

The Society has in stock, odd quantities of the following books which were in use prior to the recent revision of courses. They are now being offered for sale at reduced prices.

"INTERMEDIATE ACCOUNTING," by Karrenbrock & Simons	\$3.50
"ACCOUNTING PRINCIPLES AND PRACTICE," by Smails	\$4.50
"MANAGEMENT OF INDUSTRIAL ENTERPRISES," by Owens	\$4.50
"COST ACCOUNTANTS HANDBOOK," by Lang	\$8.00
"MATHEMATICS OF BUSINESS AND FINANCE," by Dyess & Gilmore ...	\$4.85
"COST ACCOUNTING,"—3rd edition, by Lawrence	\$4.50
"COST ACCOUNTING,"—3rd edition, by Neuner	\$4.50
"A COMMERCIAL ARITHMETIC," by Batstone	\$1.00
"ACCOUNTING PRINCIPLES AND BOOKKEEPING PROCEDURE," by Walker	\$1.30
"CANADIAN BUSINESS ARITHMETIC," Part 1, by Keast	\$.75
"CANADIAN BUSINESS ARITHMETIC," Part 2, by Keast	\$.75

The Human Relations Aspect of Financial Controls . . .

By J. A. McINTYRE,
Supervisor, Selection and Placement,
Simpson-Sears, Limited,
Toronto.

What is the motivation—fear of understanding? Do the financial controls inspire "Leadership" or do they departmentalize "Thought"? Are the financial controls applied to realistic objectives? How can the offensive connotation be removed from the word "control"? These are some of the problems that find their answers in a better appreciation of good human relations.

IT seems to me that "what makes man work" is the central challenge of business and industry today. It is possible that this has always been the core problem, although perhaps not always recognized as such.

It may be useful to draw attention to some of the differences which exist in man's attitude toward work. Young people are usually less stimulated by pension plans than older people; men are probably more concerned about the long term aspect of the job than most women; group insurance plans seem to mean more to men than women; Hospitalization seems more important to married men than to unmarried; money, as an incentive, does not always produce limitless production levels, particularly if to receive greater income, a man must put himself in a tough spot with his immediate associates. Examples of this kind could be listed almost indefinitely, but probably to no useful purpose. The point is self-evident to us all. Man works because of a multitude of reasons, influenced by a great variety of complex facts and fancies, many of which undergo change from time to time.

Incentives

Business and industry have met the challenge of getting men to work in a variety of ways.

In the first instance, a person receives a wage or salary. Under some circumstances, this income can be immediately increased by direct personal effort; under others, by above the average performance of both company and individual. This is a potent factor and influence. It has been exhaustively exploited by incentive pay plans of all types, time and motion study and the scientific management approach generally.

Programmes which have come to be known as fringe benefits have gradually appeared on the Industrial scene. Pension plans, profit sharing programmes, group hospitalization, group insurance, vacation with pay; many such plans on a contributory basis have been established as privileges and rights, with the purpose of providing a degree of security for the employee and, to a degree, satisfying the sense of responsibility

*An address given at the 34th Cost and Management Conference held in Winnipeg, Manitoba in June 1955.

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felt by many organizations toward employees. Just recently, we have witnessed the successful negotiation of a type of guaranteed annual wage heralding the establishment of yet another type of security-laden benefit.

I recite these self-evident established plans, and programmes, not because I am afraid you will be unaware of them, but because I wish to draw some perspective from where we are now, and to examine where we might go from here.

First the perspectives: Many times you will have heard the point of view expressed—"Man does not work for money alone"—"Pension plans are not really an important incentive"—"Group insurance—not for me" and so forth. On the other hand, many positive views exist in favour of money as a real and perhaps *the* most significant means of motivating people. "After all", some say, "that's what we are working for—isn't it?"

I have come to believe that many of us have been saying for some time "The greater benefits, the greater security, therefore the greater effort", and that we have persuaded ourselves that this ought to be so. While we have not ignored everything else as a stimulant to productivity, nevertheless, we act as if we expected, indeed, had a right to expect, increased productivity through employee thankfulness because of the establishing of incentive schemes and fringe benefits.

But all too frequently we have been dissatisfied with the results, haven't we? We have agreed to pay out in employee benefits greater portions of the sales dollar without any real evidence to support our hope that a measurable increase in human effort might occur.

Two errors exist in this thinking.

In the hope of accrual to our benefit, we have been *using* these evidences of a social conscience, perhaps unique in the world's history. We have been attempting to trade on what we called our generosity. We have been thinking of these as incentives—a type of candy. We are often reluctant to recognize that these benefits are good, within themselves, that no one should owe loyalty or effort merely because business extends these benefits. Are we reluctant because we think of these programmes as costs, to be paid for by more work per hour? Or have we entered into these arrangements as the result of bargaining, naturally expecting something in return? Perhaps we don't think of ourselves as exhibiting a "social conscience" at all.

Our first error is expecting something in return for doing something we ought to do any way.

The second error is perhaps more subtle.

By establishing benefit programmes we are saying to people, "Think about this plan, see how good it is, you will be able to use it, when you are old, sick, out of work, et cetera, so work hard today, and later you will probably benefit." This is indeed important, as those who benefit from the plans can verify. We, sometimes, however, fail to recognize

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the critical fact, men live today. None of the benefits provided can be experienced while working. This means of course, that we have to tie together working hard today with benefits in years to come. It is not unnatural, it seems to me, what happens to a man today has somewhat greater importance, than the postponed pleasure or benefit. We are almost saying by emphasis of the benefits as incentives, that we consider them more important than the present day-to-day events.

While there is ample evidence to demonstrate the worth of the things we have been doing, some evidence is beginning to accumulate to support the view, an inverse relationship may exist between security and productivity. When men begin to believe that whatever they do, no matter how poorly they perform, how lacking in creativeness and desire of accomplishment—nothing will happen—(the attitude that this Company never fires anyone)—this kind of paternalistic security, essentially negative, smothers effort and interest. We can create this feeling by an over-emphasis of a broad benefit programme, as an incentive, coupled with an under-emphasis of the work-a-day world in which man works and upon which he principally depends for the satisfaction of his needs.

The significant thing is that security is not really established from outside a person, it is established by the person from within. A person in any age of the world's history had real security only through his own efforts, thoughts, confidence and ability to deal effectively with the times in which he lived. In today's world, in spite of the threat of extermination, a far better place to live in than ever before, man's security rests more dramatically than ever on him alone. We must be very careful that we do not prevent the development of this positive kind of security by under-providing for the kind of situations and environment in which it will blossom.

People live now. This is all any one of us can do. We may be trying to get people to concentrate on the future benefits, ignoring, except in relatively rare instances, that men cannot experience any of these benefits until the future. We are saying, in effect, you are here, and over there are tremendous benefits; but men can't live over there, they can only live here, day-by-day. Our challenge is to face these facts squarely.

The benefits programmes are not wrong. Certainly we must continue to extend them as a part of our responsibility toward our fellow man. Another part of our responsibility—largely untouched as yet, is to learn the use and effectiveness of democratic leadership, an exhausting, frustrating, but worthwhile challenge. It hasn't often been tried because it seems easier to try to use the authority of position to provide leadership, rather than involving the people affected in what is proposed, whether or not it is to be done, how it can be done, and when it can be done.

Effective Leadership

We must look at ourselves then, as leaders in our day-to-day relations with people. This is where people work—today. If change is to occur, it will do so in this crucible. This is our challenge for the future. Let us look for the next few minutes at some things we might do.

Louis J. Halle, research professor at the Woodrow Wilson Department of Foreign Affairs, University of Virginia, writing in the June 4th issue of *Saturday Review* on the subject of "Our Uncertainty versus Our Policy", makes this statement:

"History suggests that the dangers to civilization are never over. They are merely surrounded or controlled by human virtue, for as long as it manifests itself, no longer. If we are saved, and while we are saved, it will not be simply by technological cleverness, or the brilliant conception of a political scientist, and it will not be by a one-shot manifesto, or an inspired formula of words. It will only be by our collective wisdom exercised day-by-day in all the small problems and nagging dilemmas that beset us at home and abroad. It will be by dealing with them humbly, patiently, knowledgeably, and constantly, in our schools and homes, in our newspapers, on our public platforms, in our literature and art, in our Government. It will be by the wisdom that we are able to summon for the conduct of our weekday lives."

The significance for our discussion of this quotation seems to me to be the emphasis it places on patient day-by-day activity. Business is the place where men spend at least one-third of their lives; since they normally sleep one-third and spend the remaining one-third in various ways, the work place is the most concentrated period of association and influence. It is *the* place in the world today in which we might be able to find answers to some of the problems of modern society.

There are many trails to explore, some, no doubt more fruitful than others. As I have already indicated, the one I believe most productive of exploration is the part the quality of supervision plays in employee motivation. By quality of supervision, I am not suggesting that the question resolves itself into one of whether supervision uses an iron fist in a velvet glove, or candy, to achieve increased production. What we are after is to learn how spontaneous motivation occurs, so that with this understanding, we may better understand our responsibilities as leaders to establish and maintain the kind of situation in which people will voluntarily give their effort, enthusiastically and productively. This is the challenge of our leadership, and the challenge of our times. It will never be accomplished if we are unable to accept the fact that people, to give effort voluntarily, must see the objectives as sensible. Indeed, the objectives must be shared. Hence we must learn that effective leadership is not merely deciding what will be done, then issuing orders. People can always be *made* to do what they are told. People, however, will enthusiastically work longer hours than required to get a job done, the

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purpose of which they agree with, understand and see as important. No amount of money can buy the thrill and excitement of being part of a big effort, in which your part is important, recognized as such and without which the total task would suffer. Furthermore, if you, as a leader, had the courage to let your people help in the planning of the task, let them exert some initiative even at the risk that your precise way of doing the job might be modified, and they had a clear idea of what part they were doing played in the overall objective to be achieved, I have an idea enthusiasms would be noticeable, effort would be greater and results improved. All those involved, moreover, would have been more satisfied with the experience than otherwise would be the case.

The opportunity we, as leaders, provide for those who work with us, to have an opportunity for self-expression, a desire for a new experience, an opportunity for self-determination, the satisfaction of seeing the job well done, a feeling of pride in accomplishment, will condition to a great extent how well we meet the challenge of individual spontaneous cooperation. But much more is involved.

The Need for Improved Supervision

We are also faced with many situations in industry in which, regardless of how strongly a person might feel about getting a job done well and in volume, he is controlled by the speed of an assembly line, or the limitations of some other way in which his work is organized. Essentially, our organization of business and industry falls far short of recognizing the basic nature of the human being, his feelings, needs, different abilities, satisfaction, aspirations, values or motivations. Actually, for example, through standard operation procedures and protocol, we tend to guard against human error and initiative by encouraging the rigid following of rules and regulations.

What is required in business and industry is not a revolution, but a recognition of some basic principles of organization, and of human nature, a gradual working toward the objectives these principles highlight, realizing in the process that change is a certainty in our life, and that finality is imaginary as an objective.

When supervisors plan their work, and perform the specialized tasks normally associated with supervision, the employees being supervised are more productive. A supervisor should really know a good deal about the job his subordinates are doing. But the better supervisors let their people do their jobs without continually becoming impatient and saying, by their manner, "I could do it better and faster myself." They tend to view their own job as distinct from the precise job the employee is doing.

Supervisors who have an interest in their subordinates, not in a sloppy "do-good-manner", but rather by their behaviour, demonstrate understanding, regarding mistakes not as opportunities for punishment, but for teaching better methods, taking an active interest in grooming employees for promotion, seem to get better results, and higher production

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than those who tend to emphasize unduly the production and technical side of the job, thinking of employees only as people who get the work out. The effective supervisor will be more aware of the sources of employee dissatisfaction and more critical of delays in correcting these than less effective supervisors. The most effective supervisors let people know how they are doing, take immediate corrective action, or clear cut explanations on complaints and are genuinely able to convey to other people the feeling "you can really talk about problems with this guy—even criticize him—and you know he will help."

In departments where the employees have a pride in their work performance, it is almost always an obvious sign that members of the department have sincere desire to see the job at hand done well.

The most fruitful approach to achieving the kind of supervision about which we have been speaking, seems to me to rest on learning about human relations, values, and making the principles part of our way of behaving. It should be recognized that "the principles", if we really make them part of us, will come out a bit different in each of us because of our different personalities and values. It is obvious then, that more is at stake than remembering to say "Hello" each morning and ask about the new baby.

Equally important is the opportunity to work under leadership, which behaves toward you in the same manner in which you are trying to behave toward your subordinates. Equally important is the climate, or "feeling", of the organization as a whole, as distinct from the immediate relationship with your superiors. This climate seems to be directly influenced by top management's leadership in establishing objectives for the organization, and the degree of opportunity provided the supervisor for modifying or influencing these objectives.

A great deal of attention has been paid by industry, a bit less by business to training supervisors in human relations. Where this training is a superficial recitation of the limits of good supervisory behaviour, regardless of how cleverly presented or how effective the ideas appear, few participants will have any re-creation of their way of behaving, and many will go forth clothed with various good commandments, by use of which they can do little more than attempt a manipulation of other people's behaviour. This is a very serious evil.

Because the results of such courses are largely superficial, we hear talk of brainwashing. Since real power in a corporation rests with top management, the objectives of such a course may be seen by employees and some supervisors also, as an attempt to manipulate in the interest of management, rather than to establish changes in behaviour as a basis for improved motivation, happiness and effectiveness. This is profoundly true in organizations in which top management's way of dealing with people conflicts with the "principles" being established by the course.

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How many times have you heard "you ought to give this course to my boss?"

In spite of the apparent difficulty and weakness, such programmes need to be extended, and sharpened in their approach, so that true re-creation of a man's understanding of himself, and understanding and ability in dealing with people, may occur. This is not simple and requires conference leadership of a very high order. It involves a recognition by each of us that we must constantly check our behaviour in an effort to improve our ability—to handle ourselves better in terms of other people. It is obvious it is a long process. But it is worth trying. It will be extremely difficult. A small group trying to practice a humanized approach to individuals in an organization whose entire approach is authoritarian and parental is, to put it mildly, difficult.

Thus I feel we are inevitably faced with the quality of leadership in our business as the major conditioning factor, distinguishing organizations in which strong employee motivation can prevail from those where it does not exist.

We squirm, twist and turn, look the other way, as much as we wish, but the facts are clear. Man's relation with man conditions his success or failure. Executive action may organize business by specialization, uniformity, centralization, a mechanized procedure for dealing with new situations, but insofar as these approaches deal with people, or affect people, to be truly effective they will have to be flexible, capable of change, and take people into consideration. People are the one unique and significant ingredient which distinguishes organizations. It is important to learn that lesson well.

One of the most elusive ideas for us to grasp about people is accepted eagerly about machines and methods. We recognize machines are going to become outdated—that methods need to be altered to meet new situations. To what extent do we recognize that people change, subject to the same influences that create the need for new machines? What steps do we take to meet this change by careful introduction of new ideas, full explanation of reasons for change, real willingness on our part to accept ideas which might modify the proposed change?

People undergo change subtly, sometimes rapidly, but just as certainly. It is therefore useless to hope, as I have heard some people hope, to be able to return to the days when jobs were not so plentiful as a means of increasing the level of productivity. We have to accept the fact that changes have occurred, influencing our needs, standards, viewpoints, just as these same changes influence the products our business offers to the consumer. We have to learn to live with these changes, understanding that there is no finality, but only the continual possibility of future change.

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Because of this, we should look hard at what people's behaviour is like today—not by standards of yesterday, or what we think it ought to be like. What the behaviour is, is what we have to deal with. We do this when analyzing a market for merchandise, why not the same careful, thoughtful analysis of people?

By such analysis I would hope we could learn that our problems of motivation are at the same time very complex and very simple.

They are simple because spontaneous motivation of men arises from men's relations with one another on a simple day-to-day basis. Complex, because an appreciation of the magnitude of really offering democratic leadership to people is truly terrifying. A challenge to one's own authority immediately arises when people are not simply told what to do, but are asked to consider a problem and encouraged to participate on a genuine give and take basis in the establishment of a course of action.

It seems to me you can only be truly free of the charge of manipulation of people when there is a real, genuine, and effective opportunity for the person affected by a proposed course of action, to disagree without fear of consequences. He may not get his way—no one does all the time. The important thing is he was not tricked into an action by a pretense or device. Contrary to speculation, freedom to disagree, produces truly responsible behaviour and greater "control" than the usual "authority laden" directives. Why shouldn't it? Wouldn't it with you? The type of leadership I am talking about not only understands, but operates on the principle that voluntary cooperation arises without limitation only where sincerity, integrity, humility and self-criticism are singularly evident on the part of supervision.

Our greatest struggle is not with some outside force or nation—it is with ourselves. In business, and industry, we have a positive obligation to break with the stereotyped approach. We ought to be terrified of the conforming attitude. We should be suspicious of the same old way of doing things. Rather than struggling for efficiency for itself, we should be studying efficiency in terms of the purposes of the organization. We must have the guts to recognize true democratic decision-making would not produce chaos; but does require leadership of the highest order—leadership which cannot operate behind a shield of traditional authority. We must root out every place we find it, the approach to dealing with people by kidding them they are participating in problem-solving by planting ideas and then accepting the ideas when they are brought forth as if they came from the people in the group. Let's recognize that if we let people know what really is happening, we can expect their help and creative energy. If we keep people in the dark, we get blind subservience at best. Management has responsibility to demonstrate continuously by its behaviour, that it is receptive to new ideas, to creative difference, to living adventurously, and is not, thereby threatened or made fearful.

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When we beat a drum of reward external to the job, we are only paying lip service to the reality of work as the important function it is. We are holding out candy. What we need to do is to recognize that man has a precarious hold on life on this planet at best—that he struggles not for transitory nor for postponed pleasure, either here or in the hereafter, but for the recognition of his dignity, and that of his effort.

Untapping resources of human ingenuity, effort and creativity, a good within itself, whether or not it creates a profit, involves a sincere recognition and acceptance of the dignity of man, and of work. It is a challenge worthy of our most intense effort.

FOR FURTHER READING

HUMAN BEHAVIOUR IN INDUSTRY, by W. W. Finlay, A. Q. Sartain and W. M. Tate.

HUMAN RELATIONS IN INDUSTRY, Gardner and Moore.

HUMAN RELATIONS AND LEADERSHIP, by A. H. Thomas, *The Accts. Jrnl.*, N.Z., Jan. '55.

NEW APPROACHES TO INDUSTRIAL HUMAN RELATIONS, AMA Office Man. Series, No. 134.

OBSERVING PEOPLE, by Theodore V. Purcell, *Harv. Bus. Rev.*, Mar.-Apr., '55.

PERSONALS

B. H. Breckenridge, R.I.A., assumed on June 16th, the position of Business Manager and Assistant Treasurer of Varian Associates, Georgetown, Ontario.

J. H. Reid, C.A., has been elected Executive Vice-President and Treasurer of Standard Paving and Materials Limited, Toronto, Ontario.

RECENT C.A., R.I.A., OR COMMERCE GRADUATES

We require several ambitious young men with a good basic accounting knowledge for Systems and Cost Analysis work. This is an excellent opportunity for training and advancement in a large industrial corporation. Applications will be treated in strict confidence. Give full particulars concerning education, qualifications, experience and references.

Box 50

COST AND MANAGEMENT

31 Walnut St. South, Hamilton, Ontario

Student Section . . .

ACCOUNTING I

QUESTION I (15 marks)

On March 31, 1955, the Conant Corporation's Bank Statement showed a balance of \$8,567.15. According to the accountant the ledger account of the corporation showed a balance of \$8,979.61.

On inspection, it was noted that:

- (a) The following cheques were outstanding:

#218	-	-	-	\$318.45
#271	-	-	-	285.60
#292	-	-	-	116.23
#293	-	-	-	29.46

- (b) A cheque from Mr. Robert Plane for \$162.75 deposited on March 18, 1955, had been returned marked N.S.F. but has not as yet been recorded on the books.
- (c) A cheque written by the Covant Corporation for \$785.00 had been charged to the Conant account.
- (d) A 60 day draft drawn on us by the Nadin Company for \$456.20 had been paid by the bank, but not recorded on the books of Conant.
- (e) Bank charges for collection and exchange for the month were \$14.75.
- (f) A draft in Conant's favour for \$265.50 had been collected by the bank. This fact was not recorded in Conant's books.
- (g) A cheque for \$687.50 sent out by the Conant Corporation to pay an account payable had been recorded in the cash disbursements book as \$678.50.

REQUIRED:

- (a) Prepare a bank reconciliation statement for the month of March, 1955.
- (b) Give the necessary entries in general journal form to correct the cash account.

STUDENT SECTION

SOLUTIONS

QUESTION 1 (15 marks)

(a)		Conant Corporation	
		Bank Reconciliation Statement	
		March 31, 1955	
Balance as per Bank Statement			\$8,567.15
Deduct			
Outstanding Cheques #218		\$318.45	
#271		285.60	
#292		116.23	
#293		29.46	749.74
			<hr/>
			7,817.41
Add			
Cheque drawn in error—			
Covant Corporation			785.00
			<hr/>
Corrected Bank Balance.....			<u>\$8,602.41</u>
Balance as per Ledger Account			\$8,979.61
Deduct			
N.S.F. cheque, Mr. Robert Plane		\$162.75	
Draft—Drawn on Conant by			
Nadin Company		456.20	
Bank charges—collection and			
exchange		14.75	
Error in transposition		9.00	642.70
			<hr/>
		642.70	\$8,336.91
Add			
Draft collected by bank			265.50
			<hr/>
Corrected Ledger Balance			<u>\$8,602.41</u>

(b)			
March 31	Robert Plane or a/c Rec. ..	\$162.75	
	Cash		\$162.75
	To charge Mr. R. Plane's account with amount of N.S.F. cheque.		
March 31	Notes and Bills payable (Not name of Co.	456.20	
	Cash		456.20
	To record payment of note drawn by Nadin Company on us and accepted on March —.....		

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March 31	Collection and Exchange expense	14.75	
	Cash or Bank		14.75
	To record Bank Charges for month.		
March 31	Accounts Payable	9.00	
	Cash		9.00
	To correct error in cheque drawn in favour of		
	cheque #		
	\$687.50 instead of \$678.50.		
March 31	Cash (Bank)	265.50	
	Notes and Bills Receivable		265.50
	To record receipt of pay- ment of draft drawn against		

COMMENT

Question #1. This question was handled quite well by most students. The most common error was that many students proved their cash rather than prepare a correct bank reconciliation statement. The second area in which they had difficulty was in preparing the entries to correct their cash book. They persisted in ignoring the fact that they were dealing with notes in two of the cases.

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